INTERIM REPORT OF

THE GREAT BAY SEDIMENTATION STUDY COMMISSION
(HB 216, Chapter 31, Laws of 2007)

November, 2008

The Commission's work commenced with presentations on the ecology of the Great Bay, documentation of evidence that there have been ecological declines due to sedimentation, changes in the land uses in the Great Bay watershed, and stormwater issues.

The Commission divided into two subcommittees: "**The Causes of Sedimentation**" and "**The Effects of Sedimentation."**

The Causes of Sedimentation

Members of the subcommittee include: David Funk, Jennifer Hunter, Alison Watts, Justin Richardson, Rep. Harry Merrow, Larry Ward, Chris Williams and David Cedarholm. At the November 19, 2007 meeting a work plan was presented for the Causes of Sedimentation Subcommittee.

The work plan was:

I. Itemize the causes of sedimentation in the estuary, by category (categories listed in the legislation establishing the Commission's duties)

A. Historic causes (identify specifics: agriculture, dams, construction, loss of vegetation in the watersheds, etc.)

B. Current sources (identify specifics, including construction, maintenance practices, land management practices, loss of vegetation, storm events, etc.)

C. Rank the importance of these causes

D. Identify ways to minimize further sedimentation of the tributaries and Great Bay

II. Establish policy recommendations relative to the causes of sedimentation:

Analyze: which causes of sedimentation are (or, are not) significant enough to invest more money on research, and which causes are/are not significant enough for enacting regulations that may limit land use practices by developers, government agencies and/or land owners.

A matrix was then developed to identify the adequacy of available information:

The matrix described which items is there sufficient data to understand the problem? What specific information is lacking? Where to go for that information?

Models from other estuarine systems, such as the Port of New York/ New Jersey, were then gathered to learn various methods of identifying the contribution that specific land uses make to sedimentation of surface waters.

It was determined that replicating these models for the Great Bay Estuary would require excessive investments in time, human resources and funding. For New Hampshire at this time, another approach needs to be used to address this issue. It is anticipated that the work of the legislative study commission on storm water will help to inform this part of the "Causes of Sedimentation" subcommittee's work in the near future.

The Effects of Sedimentation

The following is an interim report of the Impacts Sub-Committee, prepared by Ray Konisky.

Organization

The Impacts Sub-Committee was co-chaired by Doug Grout, NH Fish and Game, and Ray Konisky, The Nature Conservancy. Other Sub-Committee members and contributors included Dennis Abbott, Cynthia Copeland, Ted Diers, Ellen Griffin Saas, Tracy Shattuck, Fred Short, Peter Wellenberger, and Peter Whelan.

Objectives

The Impacts Sub-Committee specifically addressed the following two sections of HB 216 that sought a) to study the impacts upon the aquatic and riparian ecosystem, and b) to study the recreational, social, and commercial uses of estuarine waters that might be impacted by excessive siltation. It was originally contemplated that these two general impact categories would be considered by separate sub-committees, but the Commission determined that it would be best to combine all impact investigations into a single group.

Process

The Impacts Sub-Committee formed and met formally at six Siltation Commission meetings in 2007 and 2008. Other informal discussions were held via telephone, email, follow-up meetings.

Impacts work began with brainstorming sessions to develop a comprehensive list of potential impacts associated with excessive siltation in Great Bay Estuary. The team

organized impacts into common target areas under the categories of environmental, recreational, commercial, and social interests.

Committee members worked on subsequent assignments to investigate and identify reference sources for each potential target. The result of this process is a refined list of siltation impact targets that reflect measurable impacts as identified in scientific studies and environmental monitoring reports. The group identified about 15 publications and technical reports that document various negative environmental impacts. The New Hampshire Fish and Game Department developed a summary report to address specific siltation impacts to fish and shellfish local to the Great Bay Estuary.

The determination of impacts to recreational, commercial, and social interests required a different approach, since very few published reports were uncovered that specifically address these concerns. The Sub-Committee, drawing on its diverse membership that included marinas, harbors, fishing, and public interests, developed a set of impact targets primarily from personal observations. Other relevant parties were interviewed separately, including recreational interests such as rowing club members.

Next steps will involve further investigation of impacts, including possible analysis of historical bathymetry data, evaluation of options for reversing impacts and synthesis of interim findings into a full report.

Table 1. Interim Impact Targets

The team identified the following refined list of targets subject to negative impacts associated with excessive siltation in Great Bay Estuary.

I. Environmental

Ecosystem/Habitat
Eelgrass Beds, Oyster Beds, Subtidal Bottom, Intertidal Mud Flats, and Salt Marsh

Estuarine Species
Diadromous Fish, Horseshoe Crabs, Estuary-Resident Fish, and Clams

Water Quality Regime
Contaminant and Nutrient Transport, Suspended Particulates, and Turbidity

II. Recreational

Structural
Docks and Moorings

Activities
Boating, Rowing, Clamming, Fishing, Oyster Harvesting and Waterfowl Hunting

III. Social

Aesthetics
Scenery and Water Quality

Connectivity
Cultural and Shoreland Living

IV. Commercial

Harvest
Fish and Aquaculture

Marinas
Boats and Moorings

Infrastructure
Energy and Sanitation
Dredging and Navigation

All meeting agendas, minutes, and presentations can be found on the website of the NH Coastal Program at the Department of Environmental Services at www.des.nh.gov/organization/divisions/water/wmb/coastal/ocean_policy/gb_commission.htm.

2009 WORK OF THE COMMISSION

In order to help establish the degree of the problem of sedimentation of Great Bay, a historic documentation and comparison with present day bathymetry of the Bay is being conducted by Dr. Larry Ward of UNH over the course of 2009. By June 2009, Dr. Ward will have two products available. One product will be an analysis of sites of bathymetric changes that have occurred based on the available data and an evaluation of the locations in the estuary where sedimentation appears to be greatest. The second product will be an overall seamless bathymetry map with the most recent data.

The Causes of Sedimentation Subcommittee will work with the legislative commission on stormwater to identify areas that relate specifically to the Bay. This work will focus on ways to reduce sediment load and erosion in the Great Bay watershed.

The Effects of Sedimentation Subcommittee will continue to gather recently published data on the ecological impacts (eelgrass, fish and aquatic wildlife) as well as the social/community impacts. This subcommittee will also examine Dr. Ward's findings and attempt to pinpoint the places in the estuary where sedimentation is of greatest impact.

Beginning at its Dec. 1, 2008 meeting, the Commission is embarking upon analyzing the desirability of remediating sedimentation of the Great Bay Estuary and its tributaries, and which method is preferred. A final report in November 2009 will present the work of the two subcommittees and a set of recommendations to the legislature to address the problem of siltation in the Great Bay Estuary.

Respectfully submitted,

Judith Spang, Chair